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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/895,198	07/02/2001	K. Paul Muller	YO999-247DIV	1509

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FREDERICK W. GIBB, III  
MCGINN & GIBB, PLLC  
2568-A RIVA ROAD  
SUITE 304  
ANNAPOLIS, MD 21401

EXAMINER

TRINH, HOA B

ART UNIT PAPER NUMBER

2814

DATE MAILED: 10/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/895,198

Applicant(s)

MULLER ET AL.

Examiner

Vikki H Trinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07/16/02.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21 and 25-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21 and 25-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

((e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

An anticipation under 35 U.S.C. 102(b) or 102(e) is established when a single prior art reference discloses, either expressly or under principles of inherency, each and every element of a claimed invention. See *RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 221 USPQ 385 (Fed. Cir. 1984).

It is well settled that the law of anticipation does not require that the reference teach what appellant is teaching or has disclosed, but only that the claims on appeal "read on" something disclosed in the reference, i.e., all limitations of the claims are found in the reference. See

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Kalman v. Kimberly Clark Corp., 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1083). Moreover, it is not necessary for the applied reference to expressly disclose or describe a particular element or limitation of a rejected claim word for word as in the rejected claim so long as the reference inherently discloses that element or limitation. See, for example, Standard Havens Products Inc. v. Gencor Industries Inc., 953 F.2d 1360, 21 USPQ2d 1321 (Fed. Cir. 1991).

2. Claims 21, 25-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker (5,662,768).

Rostoker (5,662,768) discloses an IC having at least one trench capacitor, wherein the capacitor comprises:

As to claim 21: an opening (trench) having vertical sides with a plurality of lateral openings 16, 31, an insulator 30, lining said opening, and a conductor 32 filling the opening. The lateral openings have the appearance of a rectangular shape. See figures 1-4, columns 1-11.

As to claims 25-26, 28-29: the lateral openings are inherently increased the surface area of the trench capacitor, hence increasing the capacitance. See figures 1-1-4, columns 1-11.

As to claim 27, an opening having vertical sides with a plurality of lateral openings 16, 31, an insulator 30, lining said opening, and a conductor 32 filling the opening. The lateral openings have the appearance of a V-shape. See figure 3, columns 1-11.

As to claim 30, an opening (trench) having a first portion and a second portion, wherein the second portion has a larger dimension than the first portion, and a conductor filling 32 the opening (trench). All portions have the appearance of a rectangular shape. See figures 1-4, columns 1-11.

As to claims 31-32, the labeling of the first and second rectangular portion may be inherently to meet the claims' limitations, because the vertical opening has a plurality of lateral

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indentations, which can be assumed the position of the first or the second rectangular portion.

See figure 1f.

As to claims 33, 34, the lateral openings are inherently increased the surface area of the trench capacitor, hence increasing the capacitance. See figures 1-1-4, columns 1-11.

As to claim 35, an opening (trench) having a first portion, a second portion, and a third portion, wherein the second portion has a larger dimension than the first and third portion, and a conductor filling 32 the opening (trench). All the portions have the appearance of the rectangular shape. See figures 1-4, columns 1-11.

As to claim 36, the second rectangular portion is between the first and third rectangular portion. See figure 1f.

As to claim 37, the first and the third rectangular portion have similar dimensions. See figures 1-4, columns 1-11.

As to claim 38, the lateral openings are inherently increased the surface area of the trench capacitor, hence increasing the capacitance. See figures 1-1-4, columns 1-11.

3. Claims 30-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Oehrlein et al. (5,153,813).

Oehrlein et al. (5,153,813) discloses an IC having at least one trench capacitor, wherein the capacitor comprises:

As to claim 30, an opening (trench) 30 having a first rectangular portion and a second rectangular portion, wherein the second rectangular portion has a larger dimension than the first rectangular portion, and a conductor filling the opening (trench). (The examiner notes that the labeling of each portion, first or second, is based on the alternating position of the lateral openings 28, thereby meeting the claim's limitation). See figures 1-2b, columns 1-11.

As to claims 31-32, the labeling of the first and second rectangular portion may be inherently to meet the claims' limitations, because the vertical opening has a plurality of lateral

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indentations, which can be assumed the position of the first or the second rectangular portion.

See figures 1-2b .

As to claims 33, 34, the lateral openings are inherently increased the surface area of the trench capacitor, hence increasing the capacitance. See figures 1-2b.

As to claim 35, an opening (trench) 30 having a first rectangular portion, a second rectangular portion, and a third portion, wherein the second rectangular portion has a larger dimension than the first and third rectangular portion, and a conductor filling the opening (trench). See figures 1-2b .

As to claim 36, the second rectangular portion is between the first and third rectangular portion. See figures 1-2b.

As to claim 37, the first and the third rectangular portion have similar dimensions. See figures 1-2b .

As to claim 38, the lateral openings are inherently increased the surface area of the trench capacitor, hence increasing the capacitance. See figures 1-2b.

4. Claims 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen et al. (6,027,968).

Nguyen et al. (6,027,968) discloses an IC having the following elements:

As to claim 27, an opening/trench 24 having vertical sides with a plurality of lateral openings, an insulator 28, 29 lining said opening, and a conductor 30 filling the opening. The lateral openings have the appearance of a V-shape. See figure 4, columns 1-3.

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As to claims 28-29: the lateral openings are inherently increased the surface area of the trench capacitor, hence increasing the capacitance. See figures 4, columns 1-3.

### *Response to Arguments*

1. Applicant's arguments filed 07/16/02 have been fully considered but they are not persuasive. In the remarks, applicant argues that the process in which the structural elements such as the lateral openings being formed is different from the steps in which the cited reference, Rostoker, used. The examiner notes that the device claims are treated according to the structural elements/appearance, not the process in which the elements formed. Hence, Rostoker still meets the claims' limitations, as stated in the above rejections.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikki H Trinh whose telephone number is 703-308-8238. The examiner can normally be reached on Mon.-Tues, Thurs.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Vikki Trinh  
September 25, 2002



OLIK CHAUDHURI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800